Case Report

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Cutaneous Reactions Due to Accidental Exposure to Plant Growth Regulator: Occupational Pesticide Poisoning

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Abstract

Accidental Pesticide poisoning is an important health issue in developing country like India. Adverse health effects by pesticides are common among farmers due inappropriate handling. Plant growth regulator hydrogen cyanamide (Dormex) is used mainly for the bud-cleaving and growth promotion of grapes in north karnataka. Accidental exposure to hydrogen cyanamide may result in wide range of health hazards like irritant contact dermatitis. Here we discuss such a case where the patient suffered severe health hazards due to accidental exposure to hydrogen cyanamide.

Keywords: Hydrogen Cyanamide; Accidental Exposure; Cutaneous Reactions.

Introduction

Accidental pesticide poisoning is an important health issue in developing country like India. The potent chemicals used in agriculture may harm persons by accidental exposure either during application to crops or due to careless storage. Reckless use of pesticides may have many deleterious effects on humans and environment. In spite of being immense education and sensitization about pesticides still accidental poisoning is prevalent in farmers. Skin rashes and skin itchiness were also found among agricultural workers to be significantly associated with pesticide spraying.[1] Agricultural workers are at higher risk of exposure as they are unaware, have no training or guidance of pesticide spraying, and do not use protective measures for the same.

Case Report

A male patient aged 26 years admitted to the emergency ward with cutaneous reactions, irritation and erythema all over the body. He gave history of exposure to Dormex in the grape field on the same day in the morning. The method of application by him was to put the cotton in solution of Dormex and to apply on the grape buds. He used only his bare hands without any personnel protection equipment for the application but the development of rashes was on entire body. Patient required hospitalization because of extensive skin (bullous lesions) involvement (fig. 1 & 2). The blood pressure was measured 100/60 mm of hg. The pulse rate was 52/min. The laboratory investigations revealed mild metabolic acidosis. The patient was with treated with fluids, corticosteroids and antihistamines effectively and discharged after 7 days. The final diagnosis of the patient was irritant contact dermatitis due to accidental exposure to hydrogen cyanamide.

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Fig. 1: Cutaneous reactions on thigh.

Fig. 2: Cutaneous reactions on back.

Discussion

Poisoning was responsible for an estimated 252000 deaths during the year 2008 world wide. In India about 28012 poisoning deaths were reported during the year 2010. Reports from india, Indonesia Sri lanka and Thailand indicate that common availability and use of toxic pesticidesis responsible for intentional and unintentional morbidity and mortality.[2]

Occupational poisoning as a result of dermal or inhalational exposure to chemicals is a common occurrence in the developing world and still occurs in the developed world.

The use of organic manure and other cultural methods of pest control were rapidly replaced by pesticides due to easy access, quick action, and high efficacy, and this becomes the high risk factor for adverse health hazards.[3]

The climatic conditions in the northen part of Karnataka are suitable for grapes. Flowering of seasonal plants can be enhanced with plant growth regulators like hydrogen cyanamide. Maximum yield can be obtained with the help of plant growth regulators.

Insufficient precautionary information on the label and due to illiteracy, people suffer hazardous effects after exposure to this chemical. During the season, illiterate, poor people are employed for applying hydrogen cyanamide to the grape buds. These daily wage workers do not use any kind of personal protection measures while applying the chemical.

Mild skin lesions have been noticed as a result of the improper handling of hydrogen cyanamide. Hydrogen cyanamide may also known to cause systemic effects such as vomiting, headache, hypotension, altered sensorium respiratory distress and palpitation.

Italy reported maximum of these cases, where the sale and use of this chemical was temporarily stopped in February 2002. Later it was re-introduced, in June 2003, with the enhancement of the precautionary measures.4 Despite the maximum precautions still they have reported many cases. 5 That's why the agricultural laborers should be educated regarding safe handling of this chemical.

Conclusions

Adverse effects of chemicals must be mentioned on the product label in the local language. Awareness programme must be arranged on regular basis to educate and sensitize the people about ill effects of these chemicals. Personal protective equipments should be provided to the workers while dealing with these chemicals.

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